

**REMARKS**

Applicant respectfully requests reconsideration of the present application in view of the above amendments and the following remarks.

Claims 32, 33, 36, 42, 44, and 49 have been amended. Claims 32-52 are being re-presented for prosecution on their merits.

**I. SUMMARY OF OFFICE ACTION**

The Examiner rejected Claims 32-34, 36-40, 42-44, 49, 51 and 52 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,716,676 to Imagawa.

The Examiner rejected Claims 35 and 50 under 35 U.S.C. § 103(a) as being unpatentable over Imagawa in view of U.S. Patent No. 6,141,901 to Johnson et al.

The Examiner rejected Claims 41 and 45-47 under 35 U.S.C. § 103(a) as being unpatentable over Imagawa and further in view of U.S. Patent No. 5,965,185 to Bianco or U.S. Patent No. 6,227,002 to Bianco et al.

The Examiner rejected claim 48 under 35 U.S.C. § 103(a) over Imagawa in view of U.S. Patent No. 3,814,315 to Dmysh.

(The Examiner has substantially copied the art rejections from the last couple of Office Actions including the final Office Action dated October 13, 2004.)

The Examiner commented that the Declaration Under 37 C.F.R. §1.132 of Jeffrey S. Helmes was insufficient to overcome the rejection of claims based on Imagawa because – according to the Examiner – it is based on opinion and does not rely on evidence or documented facts.

**II. SUMMARY OF APPLICANT'S INVENTION**

Generally speaking, Applicant's invention is a portable/moveable apparatus for eradicating pests through the use of heated air. Applicant's apparatus comprises a chamber having a ceiling and a floor, a door that allows ingress to and egress from the interior of the chamber, a means for heating the air before it enters the chamber, and at least one plenum for assisting in circulating the air in the interior of the chamber and for improving the distribution of the heated air in order to heat the interior of the chamber more evenly.

In a related embodiment, Applicant's apparatus includes a control means for regulating the heating and air circulating means.

**III. SUMMARY OF THE PUBLICATIONS CITED IN THE OFFICE ACTION**

**A. U.S. Patent No. 4,716,676 to Imagawa**

Imagawa discloses a system for destroying insects which comprises a circulation chamber (A) that directs steam through a series of vertical self-contained units that enclose harvest boxes filled with fruit. The self-contained units are called "insect killing cells" (B). The circulation chamber utilizes a plurality of blowers 10 that move the steam in a horizontal direction. Each insect killing cell is a separate unit which includes a hood having a differential blower mounted on the hood to draw steam from the floor, through the fruit boxes and out the top of the hood (i.e., moves steam in a vertical direction). A heating device 13 and a cooling device 14 communicate with the circulation chamber (A) via a pair of discharge ports 15. A steam generator 12 also discharges directly into the chamber.

**B. U.S. Patent No. 6,141,901 to Johnson et al.**

Johnson et al. discloses a method of controlling pests by heating an area to a lethal temperature and maintaining the lethal temperature for at least eleven hours. The treatment is commenced after determining air penetration parameters for the treatment zone. The temperature in the treatment zone is elevated at a rate of between 5° F and 10° F per hour until the air temperature reaches the lethal level.

**C. U.S. Patent No. 5,965,185 to Bianco**

Bianco discloses a transportable and size-adjustable apparatus for accelerating the ripening process of produce. The apparatus includes an air-flow control system for transferring air between a high pressure plenum and a low pressure plenum.

**D. U.S. Patent No. 6,227,002 to Bianco et al.**

Bianco et al. discloses an apparatus for cooling produce. The apparatus includes a container and a cooler. The cooler is movable between a first position where the cooler is disposed within the interior volume and a second position where the cooler is at least partially retracted from the interior volume.

**E. U.S. Patent No. 3,814,315 to Dmysh**

Dmysh discloses an apparatus for heating the interior of cargo trailers. The apparatus is secured to the external surface of the trailer via a curved housing.

**IV. RESPONSE TO REJECTIONS AND OBJECTIONS**

**A. The Anticipatory Rejection (35 U.S.C. §102)**

A rejection under 35 U.S.C. §102(b) requires that each and every element of the claimed invention be taught by the cited reference. Since a patent must describe and enable an invention to one skilled in the art, an anticipatory patent by definition must place the claimed invention into the public domain.

Imagawa is directed towards an apparatus that produces steam and utilizes that steam to kill insects. A heating system that heats water and produces steam as the medium for conducting the heat uses a boiler.

In contrast, Applicant uses heated air to terminate pests. Applicant uses a heater to heat the air inside the chamber, and not a boiler as disclosed in Imagawa.

One skilled in the art would readily recognize the differences between a technology that deals with heating air and a technology that deals with producing steam. In the case of basic heating systems, one skilled in the art does not even require a college degree. (See p.6, Table 1-1, Type of Work or Education and/or Training Required, *Audel™ HVAC Fundamentals Volume I – Heating Systems, Furnaces, and Boilers*, 4<sup>th</sup> Edition, James E. Brumbaugh, ©2004 by Wiley Publishing, Inc., Indianapolis, IN.

Many different methods have been devised for heating buildings. Each has its own characteristics, and most methods have at least one objectionable aspect (e.g., high cost of fuel, expensive equipment, or inefficient heating characteristics)... The term *heat-conveying medium* means that the substance that carries

the heat from its point of origin to the area being heated. There are basically four mediums for conveying heat. These four mediums are:

1. Air
2. Water
3. Steam
4. Electricity

Page 2, lines 13 - 17 and 24-31, *Audel™ HVAC Fundamentals Volume I – Heating Systems, Furnaces, and Boilers*, 4<sup>th</sup> Edition, James E. Brumbaugh, ©2004 by Wiley Publishing, Inc., Indianapolis, IN.

After identifying the four basic heat-conveying mediums, *Audel™* then defines the mediums.

#### **Air**

Air is a gas consisting of a mechanical mixture of 23.2% oxygen (by weight), 75.5% nitrogen, 1.3% argon with small amounts of other gases. It functions as the heat-conveying medium for warm-air heating systems... (See Audel at pg. 16.)

#### **Steam**

Those who design, install, or have charge of steam heating plants certainly should have some knowledge of steam and its formation and behavior under various conditions.

Steam is a colorless, expansive, and invisible gas resulting from the vaporization of water. The white cloud associated with steam is a fog of minute liquid particles formed by condensation. This white cloud is caused by the exposure of the steam to a temperature lower than that corresponding to its pressure. ...

The various changes that take place in the making of steam are known as vaporization...

Another important factor to consider when dealing with steam is the boiling point of liquids. ...

One's knowledge of the fundamentals of steam heating should also include an understanding of the role that condensation plays. By definition, *condensation* is the change of a substance from the gaseous to the liquid (or condensate) form. ...

The condensation of steam can cause certain problems for steam heating systems unless they are designed to allow for it...

(See *Audel* at pgs. 18-21.)

A system utilizing warm air as a medium for carrying the heat does not have to take into consideration the effects of vaporization, boiling points of liquids, condensation and other factors commonly associated with a heating system that utilizes steam. In fact, a heating system that produces warm air is completely different in structure and operation than a heating system that produces steam. This not only includes the method of producing the medium (heater for warm

air vs. boiler for steam) but how that medium is delivered to the desired location.

Applicant respectfully submits that:

- A) Imagawa discloses the use of steam to kill pests. In contrast, Applicant's independent claims 32, 44 and 49 all have the limitation that the Applicant's apparatus destroys pests through the use of heated air.
- B) Imagawa requires a boiler to produce steam. A boiler is designed to heat water to at least the boiling point of water (212° F) in order to produce steam. Applicant requires a heater that heats air and Applicant does not claim a boiler. (Applicant's heater does not need to produce heat at 212° F, nor is it designed to boil water.)
- C) Imagawa floods its outer chamber with steam and then redirects the steam through a plurality of hoods 21 and blowers 10, 11. Applicant utilizes a plenum to control the introduction of the heated air into the chamber. As supported by the Helmes Declaration and the *Audel* publication (See Chapter 6), a plenum is used to direct heated air, not steam.

The Applicant's two basic premises: 1) a heating system that produces steam is so different structurally and operationally from a heating system that produces warm air that any steam system cannot anticipate an invention based on heated air; and 2) a plenum is designed to channel air not steam; are well-known in the art. The Applicant has supported his arguments with a dictionary definition, a Declaration Under 37 CFR §1.132, and an HVAC publication from *Audel*, that expressly support the Applicant's position. In addition, Applicant's evidence completely refutes the statements made by the Examiner.

The Examiner continues to contend that air and steam are both gases and as such they act in the same manner in a heating system. This contention as well as others put forth by the Examiner are simply wrong. The Applicant has asked the Examiner to provide some citation or reference to back up his statements, but as of today's date, the Examiner has failed to do so. The Applicant can only conclude that the reason the Examiner has failed to do so is because he is putting forth unsupported beliefs and can find no such reference that supports his position.

The structural and mechanical differences between a warm-air heating system and a steam heating system are so significant and elemental to an analysis of heating systems that common heating technicians (i.e., blue collar workers without any formal college education) can readily explain the differences. See p.6 of *Audel*. Yet, Applicant has wasted untold hours of time in prosecuting this application just to explain these basic differences to the Examiner, who should have such a basic knowledge of these systems. Based on the outrageous comments made by the Examiner in the various Office Actions throughout the prosecution of this application, and in particular paragraph 5 of the outstanding Office Action, one must conclude that the Examiner has never worked in the area of heating systems, has no practical experience with heating systems, and apparently has no understanding or appreciation of the many differences between the various types of heating systems.

For example, the Examiner insists that since "heated air" and "steam" are both gases, they are equivalent to each other when discussing their transmission through a plenum. (See Paragraph 5 of the Office Action dated April 14, 2005.) Some other comments made by the Examiner that are clearly wrong and are used as evidence that the Examiner has no understanding of basic heating system principles include:

A) Imagawa discloses air-filled spaces at the interior A-C and A'-C', in that these spaces are filled with air prior to the steam being moved into the interior spaces.

B) Imagawa discloses a plenum no matter what type of gas is placed inside the plenum.

The operation of Imagawa does not rely on the fact that interiors of A-C and A'-C' may be filled with air BEFORE the steam is introduced. Of course air is inside the chamber of Imagawa before operation, otherwise people who enter the interior (e.g., the people who loaded the fruit) inside of the Imagawa chamber would be severely burned. The Examiner's statement labeled "A" above is analogous to saying an automobile engine is filled with air prior to filling it with oil and gasoline; or an aquarium is filled with air prior to filling it with water! The fact that an engine, an aquarium or Imagawa's chamber are filled with air before they are operational, is irrelevant. Frankly, Applicant has no idea what point the Examiner is attempting to make by statement "A."

With respect to statement "B", a plenum is specifically designed to direct the movement of warm air. Applicant is aware of no plenum used to direct the movement of steam.

Applicant reiterates his arguments presented in the Reply and Amendment to Final Office Action mailed January 13, 2005, including the submission of the Declaration Under 37 CFR § 1.132 of Jeffrey S. Helmes. One skilled in the art in the heating industry would clearly understand the different problems associated with a heating system using heated air versus a heating system using steam. More importantly, the components and elements needed to implement each type of heating system are completely different.

The Helmes' Declaration was submitted to present objective evidence of patentability based on an analysis of the teachings of Imagawa. As stated in Mr. Helmes' Declaration, a

plenum cannot be used to carry steam. In fact, Mr. Helmes states that “there are few similarities in a system that delivers steam and one that delivers heated air.” (See Paragraph G of the Declaration.) In *Audel*, the author dedicates separate chapters to heating systems utilizing each of the four mediums. (Chapter 6 Warm-Air Heating Systems and Chapter 8 Steam Heating Systems of *Audel* are the two chapters relevant to this matter.)

The Examiner did not consider Mr. Helmes Declaration, calling it purely opinion. Applicant submits that the *Audel*™ publication, in Chapters 6 and 8, fully supports the statements made by Mr. Helmes in his Declaration and contradict the Examiner’s statements.

Since Imagawa only discloses an apparatus that produces and delivers steam to kill insects, as a matter of general principle, it cannot disclose each and every element of Applicant’s invention that claims the use of heated air to kill pests. As such, Imagawa cannot disclose each and every element of Applicant’s claimed invention and Imagawa cannot anticipate Applicant’s independent claims 32, 44 and 49, or any claim that depends directly or indirectly from the independent claims (33-43, 45-48, 51 and 52). Applicant traverses the Examiner’s rejection and respectfully requests that the rejection based on §102 be withdrawn.

Moreover, Imagawa does not teach or suggest the use of warm air to kill insects. Since *Audel* expressly lays out the differences between the components used in a steam heating system and the components used in a warm-air heating system, Imagawa cannot make obvious Applicant’s claimed invention.

After reading *Audel* (in particular Chapters 1, 6 and 8), one skilled in the art would immediately understand that a heating system utilizing steam does not and cannot utilize a plenum. All of Applicant’s independent claims include the limitation of a plenum. The Examiner’s continued insistence that Imagawa discloses a plenum is not accurate. Therefore, the

Examiner's rejection of claims as being anticipated by Imagawa is improper. Accordingly, the rejection of claims 32-34, 36-40, 42-44, 49, 51 and 52 under 35 U.S.C. § 102(b) is traversed.

The Examiner states that the applicant did not provide a specific definition of the term "plenum" in the disclosure. The reason why Applicant did not provide a definition in the disclosure was because the Applicant used the "plain meaning" of the plenum that a person of ordinary skill in the art understands. As indicated above, no known steam heating system utilizes a plenum – only warm air heating systems do so.

The Examiner begins his analysis with respect to independent claims 32 and 49. The Examiner states that "Imagawa discloses a chamber, a first end, a second end, a ceiling, a sub-ceiling and a floor." The Examiner continued by stating that the ceiling and sub-ceiling forms a plenum and directs Applicant to Figures 2, 6 and 7.

Applicant respectfully submits that the Examiner's characterization of Imagawa as having a plenum is not correct. Once again, the Examiner disguises his rejection by not referring to specific elements but by broadly referring to multiple figures. Applicant asked the Examiner to copy the appropriate figure from Imagawa and mark it up to indicate the structure in Imagawa he believes is serving as a plenum. Once again, the Examiner only continues to refer to Figures 1-2 and 6-7 to support his statements. How is the Applicant supposed to set forth arguments to an imaginary structure that the Examiner refuses to identify and only the Examiner can see? For example, on page 4 of the Office Action, the Examiner writes: "Referring to claim 42, Imagawa discloses a sub-ceiling proximate 27 in figure 5 and see figures 6-7, wherein the sub-ceiling and the existing ceiling forms the plenum either internal or external to the chamber. See for example figures 5-7."

Applicant has repeatedly requested that the Examiner specifically point out using

Imagawa's reference numbers where the plenums are located. The reason the Examiner fails to use specific reference numerals because there is no plenum disclosed or suggested in Imagawa!

The Examiner's has failed to do so in the prior Office Actions (in fact, Applicant has previously pointed out specifically where the Examiner incorrectly identified several elements of Imagawa).

Applicant's claims 32 and 44 call for a "means for heating air" and Applicant's claim 49 calls for a "heater." Imagawa requires a boiler to produce steam. Imagawa does not disclose or suggest the claimed "means for heating air." Therefore, once again, Imagawa can neither anticipate nor make obvious Applicant's claimed invention.

For the aforementioned numerous reasons, U.S. Patent No. 4,716,676 to Imagawa does not disclose each and every element of Applicant's independent claims 32, 44 and 49 (e.g., a warm air heating system, a plenum, a sub-ceiling, etc.) as amended; therefore, Imagawa cannot anticipate Applicant's claims 32-52. Moreover, Imagawa does not teach or suggest an apparatus that kills pests using warm air, does not disclose or suggest a plenum, does not disclose or suggest a warm-air heater, and does not teach or suggest other features claimed by Applicant's warm-air heating system, so Imagawa cannot make obvious Applicant's claimed invention. Applicant has traversed the Examiner's rejection and respectfully requests the withdrawal of the rejection based on 35 U.S.C. §102.

With respect to claim 33, Applicant claims a second plenum. As set forth in *Audel* and the Declaration, a heating system that uses steam as a medium for delivering heat does not utilize a plenum. Not only does Imagawa fail to disclose one plenum, it fails to disclose two plenums.

With respect to claim 34, Applicant submits that Imagawa cannot disclose the use of a indirect fired heater because Imagawa relies on steam. An indirect fired heater would not

normally produce steam. The Examiner refers Applicant to column 3, lines 1-42 as support for his statement that Imagawa discloses an indirect fired heater. The only place Imagawa appears to mention the type of heater is in column 3, lines 1-2. Imagawa only discloses the use of a steam generator 12. There is no disclosure or suggestion of using an indirect fired heater. Accordingly, the rejection of claim 34 is traversed and the Examiner must withdraw his rejection as it relates to claim 34.

With respect to Claim 36, Applicant expressly claims the recirculation of air and not steam. Imagawa discloses the circulation of steam and does not disclose the recirculation of warm air and therefore cannot anticipate or make obvious Applicant's claim 36.

With respect to Claim 37, Applicant expressly claims a duct axial fan. The Examiner asserts that Imagawa discloses a duct axial fan and as support for this assertion refers to Figure 2. Applicant respectfully submits that it is impossible to ascertain from Imagawa's Figure 2 that it utilizes a duct axial fan. The Examiner's rejection cannot be supported by the disclosure of Imagawa; it is therefore improper and must be withdrawn.

With respect to Claim 38, Imagawa does not disclose a floor being reinforced to support the weight of a forklift. In fact, Imagawa teaches directly away from Applicant's claim 38 since Imagawa clearly states that the cells are placed on the conveyor roller at the chamber's door and then slid into the chamber. (See column 3, lines 57-62.)

With respect to claim 38, the Examiner writes that Imagawa's floor is inherently of significant thickness to support the weight of machinery. As the Examiner should know, one cannot read that type of specificity into a drawing. Applicant is at a loss to determine the Examiner's basis for a rejection since a patent drawing does not have to be perfectly to scale.

Without Imagawa expressly stating such a characteristic in the specification, the Examiner's rejection is baseless and the rejection of claim 38 must be withdrawn.

With respect to claim 39, Imagawa does not circulate heated air. Accordingly, Imagawa does not disclose Applicant's invention as claimed in Claim 39.

As indicated above, Imagawa does not disclose a sub-ceiling as claimed by Applicant. Applicant has already traversed the Examiner's rejection regarding Claim 42.

With respect to claim 43, Applicant claims an inlet for allowing make-up air to be introduced into the apparatus. Imagawa cannot utilize make-up air because the air having an inherently lower humidity and pressure, would dilute the steam produced by Imagawa's boiler. Imagawa would, at a minimum, need a system that simultaneously introduces more steam by boiling more water to compensate for the low water content in the make-up air, and to compensate for the drop in pressure that would result from the introduction of air into a steam heating system.

Applicant's claim 44 expressly claims a chamber having means for lifting by external machinery. The Examiner makes an illusive reference to some feature in Imagawa referred to by reference numerals 10a, 25. Item 10a in Imagawa is an air blower and item 25 is a pallet. As can be clearly seen in Figures 2, 3, 5, 6 and 7, Imagawa has structures bolted to the ground. In Figures 2 and 3 it is the structure that is used to lift the hoods off of the insect killing cells. In Figures 6 and 7, the inner chamber is physically secured to the ground. There is absolutely no disclosure or suggestion of moving Imagawa's outer chamber as claimed by Applicant. Imagawa's apparatus was designed to be a permanently placed and does not even suggest moving the chamber. Therefore, Imagawa cannot make obvious Applicant's Claim 44.

**B. The Obviousness Rejections (35 U.S.C. §103)**

Applicant has claim limitations in claims 32 and 49 that the means for heating/heater must produce heated air. The Examiner states that Johnson et al. discloses a direct-fired system. Johnson's heater heats air and outputs heated air. Imagawa discloses a pest eradicating system that uses a boiler to make steam in order to produce an environment necessary to kill insects. The Examiner cites Imagawa as the primary reference. Applicant submits that a system that uses steam requires a boiler, which cannot be replaced by a direct-fired heater.

The Examiner states in the Office Action that it would have been obvious to one of ordinary skill in the art to take Imagawa and add the direct-fired heating unit of Johnson et al. As indicated in Mr. Helmes Declaration which is supported by *Audel™*, the production and delivery of steam requires specially adapted equipment. Replacing Imagawa's boiler with Johnson's heater would render Imagawa inoperable. Therefore, the Examiner's combination of Imagawa with Johnson is defective on its face.

The combination of Imagawa with Johnson et al. would render Imagawa unsatisfactory for its intended purpose, so there can be no motivation or suggestion to make the proposed combination. Therefore, the Examiner's combination of Imagawa with Johnson et al. is defective on its face and must be withdrawn. (See MPEP §2143.01.)

With respect to 41, and 45-47, the Examiner cites the combination of Imagawa with either Bianco or Bianco et al. Bianco discloses a moveable apparatus, but there is no suggestion or motivation in either Bianco or Imagawa to make the required modifications. Further, even if the combination was proper, Bianco and/or Bianco et al. do not overcome the other deficiencies of Imagawa. Since Claim 41 depends indirectly from independent claim 32, and Claims 45-47 depend directly from independent Claim 44; the combination of Imagawa and Bianco/Bianco et

al. still does not disclose the plenum and other features as claimed by Applicant.

With respect to claims 48, the Examiner says that Dmysh discloses a system for attaching a heater outside of the chamber. However, Dmysh is very particular with respect to the type of heater it utilizes in order to solve other issues. Specifically, Dmysh discloses the use of a catalytic heater – and no other heater. Imagawa discloses a system that uses steam which is not compatible with a catalytic heater. The combination of Dmysh with Imagawa would render Imagawa unsatisfactory for its intended purpose, so there is no motivation or suggestion to make the proposed combination. Therefore, the Examiner’s combination of Imagawa with Dmysh is defective on its face and must be withdrawn. (See MPEP §2143.01.)

**V. CONCLUSION**

Applicant has responded to all of the rejections raised by the Examiner in the outstanding Final Office Action.

The differences between the prior art as a whole and the presently claimed invention are substantial. Imagawa is fundamentally different in how it destroys insects since it utilizes steam heating system. In contrast, Applicant uses heated air to kill insects. Further, Imagawa neither discloses nor suggests a chamber having the features claimed by Applicant. For example, Imagawa does not disclose or suggest a plenum or a warm-air heater as claimed by Applicant. Since Imagawa does not disclose or suggest an apparatus that uses heated air, or an apparatus that has a plenum, Applicant requests that the Examiner withdraw all art rejections based on Imagawa.

Applicant further submits that Imagawa does not disclose or suggest a plenum as is commonly defined in the art.

In view of the above, Applicant submits that this Reply places the application in condition for allowance. Applicant respectfully requests reconsideration of the present application in view of the above amendments and remarks, and the early issuance of a Notice of Allowance for Claims 32-52.

If the Examiner continues to reject this application based on Imagawa, and the Examiner fails to provide some publication or factual basis that can support his position that a heating system using hot air is the same as a heating system using steam, the undersigned attorney for Applicant respectfully requests a conference call with the Examiner and his Supervisory Examiner.

Respectfully submitted,

Daniel P. Topp

Date: 14 OCT 2005



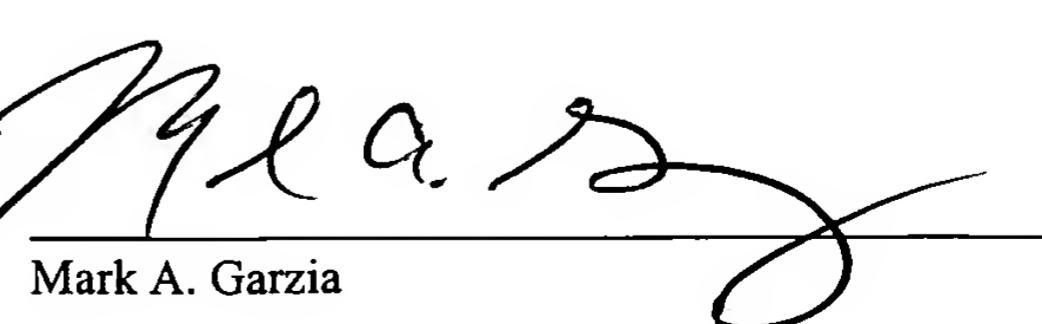
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**CERTIFICATE OF MAILING**

I hereby certify that this Reply Pursuant to 37 CFR §1.111, along with any paper or fee indicated as being enclosed, is being deposited with the United States Postal Service as First Class Mail, postage prepaid, and addressed to the Mail Stop AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

Date: October 14, 2005

  
Mark A. Garzia